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| 09/822,774 | 03/30/2001 | Jonathan Sobel | 57983.000046 | 6976 |

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| EXAMINER |
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NAHAR, QAMRUN

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01/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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| Office Action Summary | Application No. 09/822,774 | Applicant(s) SOBEL ET AL. | |
| | Examiner Qamrun Nahar | Art Unit 2191 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-8 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 10/31/2007.
2. Claims 1-3, 5-8 and 10-12 are pending.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 6-8 and 10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 6 appears to be a system of software alone, lacking the necessary physical components (hardware) to constitute a machine or a manufacture under 101. Since claim 6 is clearly not a process or a composition of matter, it appears to fail to fall within a statutory category and thus non-statutory.

Claims 7-8 and 10 are rejected for failing to cure the deficiencies of the above rejected non-statutory claim 6.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 5-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piazza (U.S. 5,881,291) (art of record) in view of Sakai (U.S. 6,113,650).

As **per Claim 1**, Piazza teaches a compiler and compilation method for processing a source program in a programming language in the Scheme/Lisp family into a representation known as continuation-passing style (CPS) before generating object code, with optimization also being involved in the processing.. (E.g. see Abstract and associated text). In that Piazza discloses the method that covering the steps of:

“transforming a first program (E.g. see FIG. 1, source code 11 and associated text, i.e. Scheme programming language) having a first multi-tasking property (note that Scheme has been using continuations to simulate multitasking, E.g. see Applicant’s specification, page 17, lines 20-22), wherein the first multi-tasking property comprises a property relating to a preemptive multitasking model (E.g. see FIG. 2, test block 23 and associated text, i.e. a long-running “loop set”), into a data structure (E.g. see FIG. 1, standard CPS 15 and associated text);”

“transforming the data structure to include an explicit multi-tasking transfer of control command (E.g. see FIG. 1, standard CPS 15 and associated text);”

“optimizing the data structure to reduce an amount of program state that is saved at a transfer of control (E.g. see FIG. 1, OPTIMIZATION 16 and associated text);” and

“generating a second program having a second multi-tasking property, wherein the second multi-tasking property comprises a property relating to a run-to-completion model. (E.g. see FIG. 2, test block 24, “convert-loop” and associated text, i.e. after conversion, the long running loop is no longer long but several small/short pieces, so each piece can be run within a

certain period of time interval, which can be considered as a “run-to-completion”), using the optimized data structure (E.g. see FIG. 1, GENERATE OBJECT CODE 12 and associated text).”

Piazza teaches a programming language in the Scheme/Lisp family. Piazza does not explicitly teach C/C++ program. Sakai teaches C/C++ program (“C program” in column 12, lines 17-22).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Piazza to include C/C++ program using the teaching of Sakai. The modification would be obvious because one of ordinary skill in the art would be motivated to optimize C/C++ program loops (Sakai, column 3, lines 40-58, “... the *optimization processing means* further comprising, loop normalization processing means ... subscript expression analyzing means ... SIMD instruction converting means ...” in column 4, lines 10-30 and *see Figure 3A*).

As per **Claim 2**, the rejection of claim 1 is incorporated and further Piazza teaches “the data structure further comprises a syntax tree (E.g. see col. 1:45-46, CPS tree).”

As per **Claim 3**, the rejection of claim 2 is incorporated and further Piazza teaches “the step of transforming the data structure to include an explicit multi-tasking transfer of control command further comprises: converting the syntax tree to a continuation-passing style (CPS).” (E.g. see FIG. 1, standard CPS 15 and associated text).

As per **Claim 5**, the rejection of claim 1 is incorporated and further Piazza teaches

“the first program having a first multi-tasking property operates using a first program language and the second program having a second multi-tasking property also operates using the first program language.” (E.g. see col. 1:39-55, which states “... the transformation or conversion consists of adding an extra argument, a continuation, to each combination. ...”). It is inherent that the second program language is still the same as the first program language.

As per claims 6-8 and 10, are system claims corresponding to the method claims 1-5 and are rejected under the same reason set forth in connection of the rejection of claims 1-3 and 5 respectively. Further Piazza discloses computer system (E.g. see FIG. 3 and associated text; and col. 8:58 to col. 10:61).

As per claims 11-12, are article of manufacture and processor readable medium, which are in fact a product claim corresponding to the method claim 1 and are rejected under the same reason set forth in connection of the rejection of claim 1 respectively. (E.g. see col. 8:58 to col. 10:61).

Response to Arguments

7. Applicant's arguments filed on 10/31/2007 have been fully considered but they are not persuasive.

In the remarks, the applicant argues that:

a) The Examiner asserts that claims 6-8 and 10 are not limited to tangible embodiments. Specifically, the Examiner alleges that these claims are "lacking the necessary physical components (hardware) to constitute a machine or a manufacture." However, there is no such requirement on patentable subject matter as long as the claimed invention as a whole accomplishes a practical application. That is, it must produce a "useful, concrete and tangible result."

Examiner's response:

a) In addition to producing a "useful, concrete and tangible result", since claim 6 is a *system* claim, it also requires physical components (hardware) to constitute a machine or a manufacture under 101. That is, claim 6 appears to be a system of software alone, lacking the necessary physical components (hardware) to constitute a machine or a manufacture under 101. Since claim 6 is clearly not a process or a composition of matter, it appears to fail to fall within a statutory category and thus non-statutory.

Furthermore, claims 7-8 and 10 are rejected for failing to cure the deficiencies of the above rejected non-statutory claim 6.

In the remarks, the applicant argues that:

b) Regarding independent claim 1, the Applicant asserts that Sakai fails to cure the deficiencies of Piazza. Further, applicant asserts that Sakai fails to teach first C/C++ program and second C/C++ program.

Examiner's response:

b) In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Piazza teaches ***first*** Scheme/Lisp ***program*** and ***second*** Scheme/Lisp ***program***. ***Sakai is relied upon for the limitation "C/C++ program" while Piazza teaches a programming language in the Scheme/Lisp family.***

In the remarks, the applicant argues that:

c) The Examiner had used "impermissible hindsight" for the motivation provided to combine Piazza and Sakai.

Examiner's response:

c) In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Therefore, it would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Piazza to include C/C++ program using the teaching of Sakai. The modification would be

obvious because one of ordinary skill in the art would be motivated to optimize C/C++ program loops (Sakai, column 3, lines 40-58, "... the *optimization processing means* further comprising, loop normalization processing means ... subscript expression analyzing means ... SIMD instruction converting means ..." in column 4, lines 10-30 and *see Figure 3A*).

In the remarks, the applicant argues that:

d) The Examiner fails to set forth an explanation as to why one of ordinary skill in the art would have been motivated to use the C program as in Sakai with a compiler that uses a Scheme/Lisp in CPS as in Piazza, or if one did, how that would work.

Examiner's response:

d) In response to applicant's argument that how to use the C program as in Sakai with a compiler that uses a Scheme/Lisp in CPS as in Piazza, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In the remarks, the applicant argues that:

e) Regarding claims 6 and 11-12, these claims recite subject matter related to claim 1. Thus, the arguments set forth above with respect to claim 1 are equally applicable to claims 6 and 11-12.

Examiner's response:

e) The Examiner had already addressed the applicant's arguments regarding claim 1 in the Examiner's Responses (b) thru (d) above. See the Examiner's Response (b) thru (d) above.

In the remarks, the applicant argues that:

f) Regarding claims 2-3, 5, 7-8, and 10, these claims are dependent upon either independent claim 1, 6, 11, or 12. Thus, since independent claims 1, 6, 11, and 12 should be allowable as discussed above, 2-3, 5, 7-8, and 10 should also be allowable at least by virtue of their dependency on either independent claim 1, 6, 11, or 12.

Examiner's response:

f) The Examiner had already addressed the applicant's arguments regarding claim 1 in the Examiner's Responses (b) thru (d) above. See the Examiner's Responses (b) thru (d) above.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Fridays from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y Zhen, can be reached on (571) 272-3708. The fax phone number for the organization where this application or processing is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Qamrun Nahar
January 8, 2008

MARY STEELMAN
PRIMARY EXAMINER

